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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/589,401

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Uwe Skultety-Betz

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EXAMINER

BYTHROW, PETER M

ART UNIT

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**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/589,401	<b>Applicant(s)</b> SKULTETY-BETZ ET AL.	
	<b>Examiner</b> Peter M. Bythrow	<b>Art Unit</b> 3662	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 21 October 2009.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-39 is/are pending in the application.
- 4a) Of the above claim(s) 1-17 and 19 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 18 and 20-39 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 14 August 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                                | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948)                        | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

***Claim Rejections - 35 USC § 102***

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 18, 20 are rejected under 35 U.S.C. 102(b) as being anticipated by Taylor, Jr. et al. (US 6999021).

**As to Claim 18**, Taylor discloses a device for locating underground utilities (abstract) comprising:

At least one radar sensor (column 3 line 22) that generates a first, high-frequency detection signal for penetrating a medium to be tested in such a way that information about an object enclosed in the medium can be obtained by measuring and analyzing a reflected detection signal of the at least one radar sensor (column 3 lines 20-24); and

At least one additional sensor (figure 1 elements 12 and 14) for generating at least one additional, second detection signal for obtaining information about the object enclosed in the medium (column 3 lines 1-3),

Wherein the information about the object enclosed in the medium includes position and depth information (column 3 lines 6-10).

**As to Claim 20**, Taylor discloses the additional sensor being an inductive sensor (column 3 lines 13-16).

**As to Claim 25**, Taylor discloses a housing in to which the radar sensor and the additional sensor are integrated (column 3 lines 1-3).

***Claim Rejections - 35 USC § 103***

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 21-24, 26, 27, 38, 39 are rejected under 35 U.S.C. 103(a) as being unpatentable over Taylor (US 6999021).

**As to Claims 21, 22**, capacitive sensors for detecting objects enclosed in a medium are well known in the art. It would have been obvious to modify Taylor, such that the additional sensor was a capacitive sensor, as it would cause no new or unexpected results.

**As to Claims 23 and 24**, infrared sensors for detecting objects enclosed in a medium are well known in the art. It would have been obvious to modify Taylor, such that the additional sensor was an infrared sensor, as it would cause no new or unexpected results.

**As to Claim 26**, Taylor discloses the radar sensor and additional sensors being collocated on a moveable support (figure 1 element 16 and column 3 lines 1-3). The use of printed circuit boards is well known in the art. Though Taylor does not explicitly disclose the sensors being mounted on a shared printed circuit board, it would have been obvious to modify Taylor such that the radar sensor and additional sensors were

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mounted on a shared printed circuit board as it would cause no new or unexpected results.

**As to Claim 27**, Taylor discloses the radar sensor being advantageously implemented as a ground penetrating radar system (column 3 lines 20-24). Though Taylor does not explicitly disclose the radar sensor being of the wideband pulse variety, wide band pulse radar sensors are well known in the art. It would have been obvious to modify Taylor such that the radar sensor was a wide band pulse radar sensor as it would cause no new or unexpected results.

**As to Claim 38**, it is well known in the art to discard ambiguous signals and process unambiguous signals. It would have been obvious to modify Taylor such that only unambiguous signals were sent downstream to a data processing unit in order to process only those signals which convey desired information and ignore aberrant signals.

**As to Claim 39**, signal analysis is well known in the art. It would have been obvious to modify Taylor such that the unambiguous signals are sent downstream to the data processing unit after analysis by an analyzing unit as it would cause no new or unexpected results.

5. Claims 28-37 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wollny (US 5680048) in view of Taylor (US 6999021).

**As to Claim 28**, Wollny discloses a radar device having a radar sensor that generates a first detection signal for penetrating a medium to be tested in such a way

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that information about an object enclosed in the medium can be obtained by measuring and analyzing a reflected detection signal of the radar sensor (column 1 lines 43-47), and an additional sensor for generating a second detection signal for obtaining information about the object enclosed in the medium (column 1 lines 65-67 and column 2 lines 1-3). Wollny does not specifically disclose the information about the object enclosed in the medium including position and depth information.

Taylor discloses a device for locating underground utilities (abstract) comprising:

At least one radar sensor (column 3 line 22) that generates a first, high-frequency detection signal for penetrating a medium to be tested in such a way that information about an object enclosed in the medium can be obtained by measuring and analyzing a reflected detection signal of the at least one radar sensor (column 3 lines 20-24); and

At least one additional sensor (figure 1 elements 12 and 14) for generating at least one additional, second detection signal for obtaining information about the object enclosed in the medium (column 3 lines 1-3),

Wherein the information about the object enclosed in the medium includes position and depth information (column 3 lines 6-10).

**As to Claim 29**, Wollny discloses receiving reflected radar signals for analysis (column 2 lines 49-57). It is inherent in the operation of this type of radar system that objects be detected by transmitting a radar signal and carrying out analysis on the reflected radar signal in order to measure an object.

**As to Claims 30, and 31**, capacitive sensors for detecting objects enclosed in a medium are well known in the art. It would have been obvious to modify Taylor, such

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that the additional sensor was a capacitive sensor, as it would cause no new or unexpected results.

Wollny discloses the radiating elements being situated on a printed circuit board, but does not explicitly disclose the radar sensors and the additional sensor being both situated on the printed circuit board. However, manufacture of sensor components on printed circuit boards is well known within the art. It would have been obvious to modify Wollny in view of Taylor such that both the radar sensor and the additional sensor were situated on the same printed circuit board as it would cause no new or unexpected results.

**As to Claim 32**, Wollny discloses the additional sensor being an inductive sensor and generating an additional detection signal (column 2 lines 22-25).

**As to Claim 33-35**, Wollny in view of Taylor does not explicitly disclose the time operating parameters for measurement of the first detection signal and the second detection signal. However, time operating parameters for measurement of signals simultaneously, quasi-simultaneously, and sequentially are well known, and would be obvious to try, as they would cause no new or unexpected results.

**As to Claim 36**, Wollny discloses measuring and analyzing a plurality of detection signals (column 1 lines 65-67 and column 2 line 1), the sensors originating from a group of sensors including an inductive sensor (column 2 lines 22-25).

**As to Claim 37**, Wollny discloses the detection signal of a sensor being optimized by measuring and analyzing an additional detection signal (column 3 lines 33-36).

### ***Response to Arguments***

6. Applicant's arguments with respect to claims 18-37 have been considered but are moot in view of the new ground(s) of rejection.

### ***Conclusion***

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Peter M. Bythrow whose telephone number is (571)270-1468. The examiner can normally be reached on Mon-Fri, 8AM-5:30PM, Alt Fri, EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Thomas H. Tarcza can be reached on 571-272-6979. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



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Peter M Bythrow

Examiner, Art Unit 3662

/Thomas H. Tarcza/

Supervisory Patent Examiner, Art Unit 3662